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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,392	02/25/2002	Venkateshwaran Vaiyapuri	2269-4369.1US (99-1230.1)	6993

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EXAMINER

ZARNEKE, DAVID A

ART UNIT PAPER NUMBER

2827

DATE MAILED: 11/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/082,392

Applicant(s)

VAIYAPURI, VENKATESHWARAN

Examiner

David A. Zarneke

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/767,446.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Honda et al, US Patent 5,724,233.

Honda teaches a method of making a chip-on-chip type device (Figures 19A & 19B) comprising:

providing a base lead frame having a die attach site (104') with 1st side and a 2nd opposing side and a plurality of primary lead fingers (104 & 104a) extending away from the die attach site;

attaching the back side of a 1st die (103a) to the 1st side of the die attach site with the active surface of the 1st die facing away from the base lead frame;

attaching the back side of a 2nd die (103b) to the 2nd side of the die attach site with the active surface of the 2nd die facing away from the base lead frame;

attaching lead fingers (107a-b) of a 1st offset lead frame extending over the 1st die to the primary lead fingers of the base lead frame;

attaching lead fingers (107c-d) of a 2nd offset lead frame extending over the 2nd die to the primary lead fingers of the base lead frame; and

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electrically connecting the lead fingers of the 1st and 2nd offset lead frames to bond pads (108a-b) of the 1st and 2nd die (11, 17+).

Regarding claims 2 and 3, Honda teaches forming the lead fingers of both of the offset lead frames in a cantilever manner over both of the die from locations of attachment of the lead fingers of both offset lead frames to the primary lead fingers (Figure 19A).

With respect to claim 4, Honda teaches using TAB bonding (11, 17+).

As to claim 6, Honda teaches the dice to be substantially identical (11, 71+).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda et al, US Patent 5,724,233, as applied to claim 1 above, and further in view of Michii et al., US Patent 5,303,120.

Regarding claim 5, while Honda is silent about the location of the bond pads on both of the die, Michii teaches a method of making inversion type chip packages comprising chips having centrally located bond pads (Figure 6, 42a).

With respect to claim 7, while Honda is silent about the type of die used, the specific use of a memory die is an obvious matter of design choice. Design choices and

changes of size are generally recognized as being within the level of ordinary skill in the art (MPEP 2144.04(d)).

Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda et al, US Patent 5,724,233, as applied to claim 1 above, and further in view of Masuda et al., US Patent 6,252,299.

Regarding claim 8, Honda teaches 2 groups of primary lead fingers extending from each side of the die attach site and 2 groups of lead fingers extending from the offset lead frames (Figures 19A-B).

Honda, relied upon as taught above, fails to teach the use of dam bars for the primary lead frame and each of the offset lead frames.

Masuda teaches a method of making a stacked device package comprising the use of dam bars (11) extending between the lead fingers (3A) of each of the lead frames, wherein the lead fingers are laterally spaced and mutually connected to the dam bar extending substantially transversely therebetween, and wherein the dam bars of the 1st and 2nd offset lead frame is mutually spaced so as to be alignable in superimposition with the dam bars of the base lead frame and attachment of the lead fingers of the offset lead frames to the primary lead fingers includes aligning the dam bars in superimposition (Figures 4, 5, 14, 15, 18 and 19).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the dam bars of Masuda in the invention of Honda because dam bars improve the stability of lead frames and lead fingers.

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With respect to claims 9-11, the use of opposing cavities to encase the lead frame package in order to encapsulate it with a polymer is conventionally known in the art.

The use of conventional materials to perform there known functions in a conventional process is obvious. In re Raner 134 USPQ 343 (CCPA 1962).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Zarneke whose telephone number is (703)-305-3926. The examiner can normally be reached on M-F 10AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (703)-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703)-308-7722 for regular communications and (703)-308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0956.

David A. Zarneke
November 18, 2002

